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## EUROPEAN PATENT APPLICATION

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71 Applicant: **EXXON RESEARCH AND  
ENGINEERING COMPANY**  
P.O.Box 390, 180 Park Avenue  
Florham Park, New Jersey 07932(US)

72 Inventor: **Cody, George Dewey**  
**30, Bainbridge Street**  
**Princeton, New Jersey(US)**

Inventor: **Elzinga, Eugene Robert, Jr.**  
**12, Middle Island Point**  
**Marquette, Michigan(US)**

Inventor: **Baker, Charles Lambert, Jr.**  
**21, Memel Drive**  
**Thornton, Pennsylvania(US)**

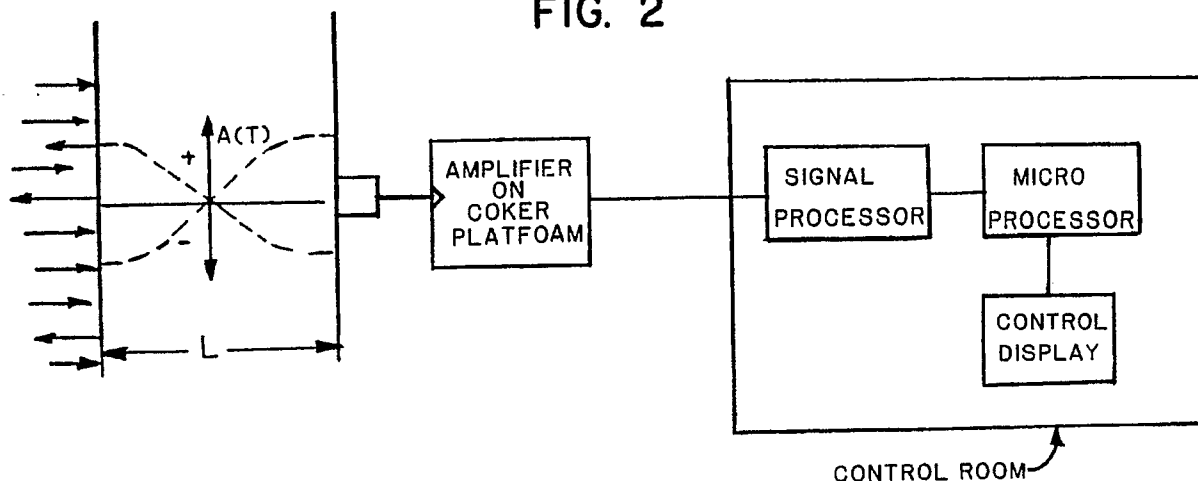
74 Representative: **Somers, Harold Arnold et al**  
**ESSO Engineering (Europe) Ltd. Patents &  
Licences Mailpoint 72 Esso House Ermyn  
Way**  
**Leatherhead, Surrey KT22 8XE(GB)**

54 Passive acoustics method to monitor fluidized bed level.

57 A method is described for the non-intrusive determination of the bed level in two phase fluid bed reactor using wall vibrations of the reactor, which involves: measuring wall vibrations of the structure of the reactor at several vertically-separated positions along the wall thereof, and determining the power

spectrum as a function of frequency. The area of the power spectrum under a resonance peak is determined for each position, and a change in the area of the power spectrum in the vertical sense is correlated with the bed level.

FIG. 2



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# EUROPEAN SEARCH REPORT

EP 90 30 2218

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                           |                              |                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Citation of document with indication, where appropriate, of relevant passages                                                                                             | Relevant to claim            | CLASSIFICATION OF THE APPLICATION (Int. Cl.5) |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DE-A-3 430 717 (BATTELLE-INSTITUT)<br>* page 4, line 28 - page 5, line 27; figures 1, 2 *<br>- - -                                                                        | 1                            | G 01 F<br>23/28                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PATENT ABSTRACTS OF JAPAN vol. 6, no. 75<br>(P-114)(953) 12 May 1982,<br>& JP-A-57 13320 (TOKYO SHIBAURA DENKI K.K.) 23 January 1982,<br>* the whole document *<br>- - -  | 1                            |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PATENT ABSTRACTS OF JAPAN vol. 9, no. 203<br>(P-381)(1926) 21 August 1985,<br>& JP-A-60 66121 (HITACHI SEISAKUSHO K.K.) 16 April 1985,<br>* the whole document *<br>- - - | 1                            |                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NL-A-7 106 901 (SUMITOMO METAL INDUSTRIES LTD)<br>* page 2, line 14 - page 3, line 35 ** page 5, line 1 - page 6, line 15; figure 1 *<br>- - - - -                        | 1                            |                                               |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                           |                              | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.5)      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                           |                              | G 01 F                                        |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                           | Date of completion of search | Examiner                                      |
| The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                           | 18 April 91                  | HEINSIUS R.                                   |
| <div><div><p><b>CATEGORY OF CITED DOCUMENTS</b></p><p>X: particularly relevant if taken alone</p><p>Y: particularly relevant if combined with another document of the same category</p><p>A: technological background</p><p>O: non-written disclosure</p><p>P: intermediate document</p><p>T: theory or principle underlying the invention</p></div><div><p>E: earlier patent document, but published on, or after the filing date</p><p>D: document cited in the application</p><p>L: document cited for other reasons</p><p>&amp;: member of the same patent family, corresponding document</p></div></div> |                                                                                                                                                                           |                              |                                               |